Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.-20. (Cancelled).

21. (Currently amended) A system for clustering data comprising:

a computer executing a computer program performing at least the following ~~steps~~:

~~(a)~~ receiving into the computer a plurality of data points for clustering;

~~(b)~~ receiving into the computer a size parameter for specifying the number of data points to be moved at one time;

~~(c)~~ clustering the data points by using the size parameter to generate clustered results;

~~(d)~~ determining whether the clustered results are satisfactory;

~~(e)~~ when the clustered results are satisfactory, stop clustering;

~~(f)~~ otherwise when the clustered results are not satisfactory, revise the size parameter, perform clustering based on the revised size parameter and the clustered results, and proceed to step (d).

22. (Currently amended) The system as defined in claim 21 wherein ~~step (c) of the computer program~~ clustering the data points further comprises:

~~(c1)~~ evaluating subsets of data points in each cluster for moving into every other cluster by using a predetermined metric; wherein the number of data points in the subset is specified by the size parameter.

23. (Currently amended) The system as defined in claim 22 wherein ~~step (c1) of the computer program~~ evaluating subsets further comprises:

~~(c1_1)~~ determining a geometric center of the subset of data points being evaluated for a move;

~~(c1_2)~~ using the geometric center of the subset of data points ~~in~~ and the predetermined metric to generate a value.

24. (Currently amended) The system as defined in claim 23 wherein ~~step (c1) of the computer program~~ evaluating subsets further comprises:

~~(c1_3)~~ determining whether the value is greater than zero;

~~(c1_4)~~ when the value is greater than zero, moving the subset of data points from a Move_From cluster to a Move_To cluster;

~~(c1_5)~~ when the value is not greater than zero, determining if there are more subsets to evaluate;

~~(c1_6)~~ when there are more subsets to evaluate, proceeding to ~~step (c1)~~evaluating the subsets;

~~(c1_7)~~ when there are no more subsets to evaluate, determining whether any point has moved;

~~(c1_8)~~ when a point has moved, proceeding to ~~step (c1)~~evaluating the subsets; and

~~(c1_9)~~ when no point has moved, stopping the processing.

25. (Currently amended) The system as defined in claim 24 further comprising:

wherein each data has a membership with one cluster; and

wherein ~~step (c1_4)~~ moving the subset of data points from a Move_From cluster to a Move_To cluster ~~of the computer program~~ further comprises simultaneously updating the membership of at least two data points from the membership of the Move_From cluster to the membership of the Move_To cluster.

26. (Currently amended) The system as defined in claim 24 wherein ~~step (c1_4) of the computer program~~ moving the subset of data points from a Move_From cluster to a Move_To cluster further comprises:

updating the count of the Move_From cluster;

updating the center of the Move_From cluster;

updating the count of the Move_To cluster;

updating the center of the Move_To cluster.

27. (Currently amended) The system as defined in claim 21 wherein ~~in the computer program,~~ revising the size parameter ~~of step (f)~~ further comprises ~~(f_1)~~ decreasing the size parameter.

28. (Currently amended) The system as defined in claim 21 wherein ~~step (d) of the computer program~~ determining whether the clustered results are satisfactory further comprises:

~~(d_1)~~ employing a predetermined metric for determining whether the clustered results are satisfactory; wherein the predetermined metric includes a geometric center of the subset of points that are being evaluated for move.

29. (Currently amended) The computer readable medium of claim 28 wherein the predetermined metric ~~of step (d_1)~~ of the computer program comprises the following expression:

$$\frac{n_i}{n_i - |U|}|m_u - m_i|^2 - \frac{n_i}{n_i + |U|}|m_u - m_i|^2$$

where U is the subset of data points being evaluated for the move, $|U|$ is the size of U that is specified by the size parameter, ~~m_{oo}~~ m_u is the geometric center of U, m_i and m_j are the centers of the clusters and n_i and n_j are the counts of the clusters.

30. (Previously presented) The system as defined in claim 21 wherein the system is utilized in one of a data mining application, customer segmentation application, document categorization application, scientific data analysis application, data compression application, vector quantization application, and image processing application.